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ABSTRACT

Measurement procedures used in Iran for the selection of college students are described. The pre-university system of education has no mission other than college preparation. In 1972-73 the higher education system was comprised of 158 institutions: eight universities, 54 "B.A. granting" colleges, and 96 junior colleges. In 1972-73, 13 institutions selected their students through centralized entrance examination (CEE). The other institutions selected their students through separate entrance exams. The CEE is carried out by the Testing Center of the Ministry of Science and Higher Education once a year in the summer. The CEE is composed of objective tests combined as a test battery and supposed to measure intelligence, abilities of applicants in the Persian language and a foreign language, Natural and Social Sciences, and Mathematics. The combination of these subjects depends on the areas of major emphasis in high school. Because of recent correlational studies between high school grades, CEE scores, and college achievement in the first two years, one university has the first time selected students based on high school grades, rather than testing. Recommendations for further improvement are offered. (RC)

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SELECTION OF COLLEGE FRESHMEN IN IRAN

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Abstract

The purpose of this paper is to describe the measurement procedures used in Iran for the selection of college students. The channels for selection of students are reviewed in the introduction. In the next two sections the testing and non-testing procedures are discussed. Some recommendations are presented in the last part of the paper.

I. INTRODUCTION

The educational system in Iran has such a structure that each level of education "prepares" the students for the next level. Primary school prepares students for secondary school and this leads them to college. In other words, the pre-university system of education in Iran has no mission other than college "preparation!"

In the academic year 1972-73, higher education system of Iran was comprised of 158 institutions: eight universities, fifty-four "B.A. granting" colleges and ninety-six junior colleges. In the same year, the system enrolled about 115,000 students.(1)

From the view point of student selection procedures, the 158 institutions may be divided into three groups. First, colleges affiliated with the universities enroll about 10,000 freshmen each year. Second, independent "B.A. granting" colleges affiliated with the Ministry of Science and Higher Education, or other governmental or private organizations. These colleges admitted about 10,000 students in 1972-73. Finally, junior colleges which are mostly two-year post-secondary schools, admitted 36% of the freshmen (11,000) in 1972-73.

In 1972-73, thirteen institutions (8 universities and 5 of the "B.A. granting" colleges) selected their students through centralized entrance examinations (CEE). The other institutions selected their students through separate entrance examinations. The CEE is carried out by the Testing Center of the Ministry of Science and Higher Education once a year in the summer.

Founded in 1970, the Testing Center has been primarily concerned with designing and administring entrance examinations. In 1972-73, this Center carried out the CEE and selected 33% of the freshmen at the higher education system for the eight universities and five of the "B.A. granting" colleges. In 1974-75, the number of universities which selected their students through this process decreased to six, while the number of "B.A. granting" colleges participated in CEE remained the same.

The selection testing may proceed by one of these channels: 1) the general centralized entrance examinations, administered by the Testing Center, 2) special entrance examinations administered by the Testing Center and 3) the entrance examinations administered by colleges themselves. Although general and special entrance examinations are administered by the Testing Center for different colleges ("B.A. granting" or junior colleges), the entrance examinations for the third channel are designed and administered by some colleges themselves or testing services provided by some private organizations. It should be mentioned, however, that almost every applicant for higher education takes the centralized entrance examinations (first channel) at least once.

In early spring of each year, the Testing Center announces the dates for CEE and invites the potential applicants for higher education (high school graduates in the past years and high school seniors) to fill out application forms for taking CEE and indicate their preferences for major fields of study, offered by the institutions. In 1972-73, there were 82,000 potential applicants for taking CEE[2]. In spite of this, the actual number of applicants

decreased to about 62,000 (76%). This is due to the fact that some of the potential applicants might have failed in obtaining their high school diplcma and some others, who have succeeded to obtain high school diploma, had decided not to take the examinations. Of the actual applicants about 40% graduated in the year (1972) they applied to CEE (see Table A in Appendix A).

The number of high school graduates who were selected as college students was about 31,000[1] in 1972-73. Therefore, the proportion of applicants who were admitted to higher education was about 50%. Of these, 32% were admitted to the universities, 32% to "B.A. granting" colleges, and the remaining to junior colleges. On the other hand, the distribution of college students by year of high school graduation indicates that the proportion of freshmen who received their high school diplomas in the same year they were admitted to college, is about 40%.[3] Applying this percentage, we find that of the 31,000 selected applicants, approximately 12,000 graduated in the year (1972) they applied to CEE. Considering that the number of applicants graduated in the year 1972 is 25,000 (see Table A), we find the proportion of high school graduates who are selected to attend higher education institutions is also, about 50%. In this regard, admission to higher education system is considered to be highly competitive.

The number of applicants increased about 15% in the academic year 1973-74. This increase is due to social demand, population growth, and above all the prestige and high income associated with college degrees. The majority of high school graduates wish to enter Medical schools, Engineering, or Law schools. A study shows that in 1969-70,

about 25% of the applicants applied for admission to the Medical schools and indicated medicine as the first choice for their studies.[4] Therefore, the limited number of available places and the ever-increasing number of applicants make the selection of students a critical process.

II. TESTING PROCEDURES EMPLOYED

The tests and materials of the centralized entrance examinations (CEE), which almost every applicant for higher education takes, are comprised of objective tests combined as a test battery and supposed to measure "intelligence", abilities of applicants in the Persian Language and a foreign language, Natural and Social Sciences and Mathematics at high school level. The combination of these subject matters varies depending on the areas of major emphasis of high school graduates. The students who apply for admission through CEE, have one of the areas of Mathematics, Natural Sciences and Humanities as their major area of emphasis in high school (see Appendix B).

In 1973-74, the test battery for high school graduates, majoring in Natural Science, consisted of "intelligence", Persian and foreign languages, physiology, geology and evolution, physics, mathematics and chemistry.[5] Each of the first three tests received a different weight varying from one to three, adding up to seven. The combination of tests and their weight, for high school majors, in 1973, is given in Appendix B.

The tests consist of multiple choice items with four options. The items are written by subject matter specialists, who prepare a pool of items for each subject matter. The specialists are university professors or instructors who work as part-time

employees for the Testing Center. Since the subject matter specialists, usually, are not familiar with the principles of test construction, and do not work closely with an educational measurement specialist, they hardly pay attention to the difficulty level and discrimination values of the test items. Consequently, the merit of items are judged subjectively. They are selected without objective criteria.

In 1974-75, the average number of items on a test was about 60 and the average time limit for taking it was about 40 minutes. Maximum number of items belonged to Natural Science test (76 items) with 35 minutes, and the maximum time limit belonged to Mathematics test (70 minutes) with 60 items. In general, each test battery was comprised of six tests and the applicants were expected to take them in a four-hour-long testing session (see Table C_1). Therefore, there is a time limit, for responding to the items of each test, such that not all examinees can attempt all items. In other words, the test battery is comprised of speed tests.

The items on the tests are scored by giving credit of (+1) for each correct response and a weight of (0) for each wrong answer or omission. The raw score for each test is found by summing up the scores for the correct answers and subtracting 1/3 of the number of incorrect answers, as a correction for guessing. Then, the raw score is standardized and the appropriate weight (see Appendix B) is applied. By summing up the weighted sum of scores of tests on a battery, a "composite score" is found for each applicant.

As concerns the reliability of the tests, the result of a recent study shows that they have internal consistency. The computed

"Kuder-Richardson Formula 20", for the tests used in the past centralized entrance examinations, are above .80 with some exceptions.(6)

As mentioned previously, every applicant for taking the centralized entrance examinations should indicate his preferences for major fields of study, offered by the institutions selecting students through CEE. In 1973-74, there were 193 "major fields of study" from which an applicant could make ten "choices" by indicating his preferences, from the first to the tenth in that order (see Appendix C for the number of "major fields of study" and other data about the CEE in 1974-75).

The selection of a student is made with respect to his "choices", through three steps. First, the average of "composite score" is found and the applicants who scored below the average are eliminated. Then, the name of remaining applicants are ranked under their "first choices" (major fields of study) according to their "composite score". Finally, with respect to the number of places available for each major field of study, the same number of applicants who are listed at the top of each "choice" is selected.

After recording the selected students for the "first choices", the process is continued for the other "choices". Therefore, the selection criteria are:

1) *the availability of place for each major field of study*
2) *the performance of applicants on the tests, and*
3) *the order in which the applicants have made their choices.*(5)

The first criterion is determined by higher education institutitutions themselves, the second and third criteria are dictated by the performance of applicants on the tests, and their preferences (through their choices).

It should be mentioned that no applicant whose score falls below average is admitted to the universities or to the institutes of higher education which select their students through centralized entrance examinations. However, those who are not selected through this process may have other chances offered by the second or third "channels" of student selection.

The second "channel", as pointed out previously, is a process of student selection which is carried out by the Testing Center for some of the "B.A. granting" colleges and junior colleges. The tests which are employed for the second "channel" is similar to the tests used for the first one, but the subject matters included and their weights differ according to the major field of study. Similarly, by summing up the weighted sum of scores of tests, a composite score is found and applicants are ranked with respect to their composite score. Although no cut-off point is used in the second "channel", the students compete with each other to get admitted.

The third "channel" is a process of student selection which is carried out by the colleges themselves or private testing organizations. In other words, these colleges develop and administer either essay-type examinations or objective tests consisting of multiple choice items. Although, the subject matters included in the third "channels" are rather similar to the first "channel" too, the weights which are assigned to different subject matters vary according to the major field of study in a college.

Similarly, students are selected with respect to their weighted sum of scores on the tests, and the number of places available for each major area of study.

Few studies have been conducted about the value of testing procedures employed in centralized entrance examinations (CEE). Baraheni[8] carried out a study concerning the predictive validity of the tests. This study indicates that a multiple regression equation, employing scores of the high school final written examinations (HSFWE), predicts college achievement with higher validity than the CEE "composite score", or a composite score based on regression equation. Furthermore, the study shows that a multiple regression equation combining both the HSFWE scores and the CEE scores has the highest validity for prediction of college achievement. However, the increased validity resulting from adding CEE scores seems to be negligible (see Table E in Appendix E).

This may have resulted from the fact that the achievement criteria, which was defined as students scores on essay-type examinations in college, are similar to high school examinations; while centralized entrance examinations are multiple choice objective tests and the applicants, usually, are not familiar with this type of examinations.

III. NON-TESTING PROCEDURES EMPLOYED

In the past years, some correlational studies have been conducted between high school grades, entrance examination scores, the average achievement of students in the first two years of college and also the relationship between high school graduates. The result of one of these studies[9] at Pahlavi

University, indicates that the average of the scores of the sixth year of high school has the predictive and construct validity for prediction of college achievement.

Consequently, in 1972-73, for the first time, Phalavi University attempted to select college students through their high school records, rather than any kind of testing or examinations. Considering that the grading system of high school in Iran is based on a scale 0 to 20, the admission criteria included the following:[7]

1) *Applicants should have an average score of not less than 14 (70 over 100) for each year during the six years of high school, or their average score for the first five years of high school should be 16 (80 over 100) or greater. Besides, they should have graduated in June, rather than August which indicates failure on the first general graduation examination.*

2) *They should not have repeated any of the high school grades.*

In 1974-75, the average score criteria was changed to 15 (75 over 100) for the first five years of high school. Although this procedure has been used in the last two years, no published study about its merits has yet appeared.

IV RECOMMENDATIONS FOR FURTHER IMPROVEMENT

A. Shortcomings of the Present Selection Process

As was mentioned previously, the validity of tests employed in the selection process cannot be dependent on. Besides, the weights assigned to different tests on a battery do not seem to be in direct proporition to their

correlation with the criterion score, which is necessary for maximum predictive value.

Another point is that due to the differences in socio-economic background of the applicants, their knowledge levels differ widely. Since the tempo of daily life and motivation to hurry differ among socio-economic levels, the value attached to rapid performance vary widely among applicants from different social strata, between urban and rural subcultures, the selection process which is based on competition is more favourable towards applicants from "advantaged" families (favouring higher cultural and economic environments). A study conducted in 1969-1970 shows that the proportion of students in higher education from upper and middle class families was much greater than the proportion of students from the low income, "less advantaged", families[4] (see Appendix D). Although the latter proportion has increased in the past few years, considerable improvement still is needed in order to attain a proportionately higher number of students from "less advantaged" families.

Another shortcoming of the selection process is that it duplicates the effort of applicants for seeking admissions. Applicants who are not selected by the centralized entrance examinations for the "top" thirteen institutions apply to the other colleges which select their students through second or third "channels". These applicants take the entrance examinations administered by different colleges as many times as they find a chance.

Finally, the greatest shortcoming of the present selection process is the way in which applicants are informed about their achievements on the entrance examinations. The results of each entrance examination are published in daily newspapers by announcing the names of admitted applicants. The applicant whose name does not appear on this list becomes seriously discouraged of his performance on the examinations. This might cause a severe emotional reaction for some high school graduates.

A publicized knowledge of "pass" or "fail" (assuming the tests were accurately administered and scored) without the opportunity to discuss it further, may be emotionally detrimental to the individual. Of course, the possible harm is compounded if the score itself is in error.(10)

B. *Recommendations*

As mentioned previously, a determinant factor in the selection of a student for higher education in Iran is his performance on the entrance examinations. However, entrance examinations used in the student selection process should not only be a kind of end-of-course examinations. Instead, they should provide useful information as supplement to, rather than as a substitute for, high school grades.

Considering the fact that high school final written examinations scores predict college achievement pretty well, it is recommended that these scores be combined with the scores on scholastic aptitutde tests. These tests should estimate the extent to which a high school graduate will

profit from college education. A multiple regression equation, employing scores from the high school final examinations and the scores on a scholastic aptitude tests, could be used for finding a composite score. Considering the fact that achievement is a resultant of aptitude and interest, the composite score may be supplemented with the result of an "interest inventory" for determining the direction of the applicant's interests and motives.

The tests can be administered by a "National College Entrance Examinations Board (NCEEB), across the country twice a year, so that any applicant who wants to get admitted to higher education system takes the tests only once.

Then the results may be reported according to social and geographical background of the applicants upon a request from colleges to which applicants apply for admission.

Finally, the applicants to a college may be grouped by their socio-economic background of their families and be ranked according to their reported scores on the NCEEB tests, and their interests. However, the selected students should be approved by the "National College Entrance Examinations Board." This "extra" effort provides a mechanism by which inter-personal influencial behaviors are controlled and eliminated.

APPENDIX A

Table A: *Distribution of applicants in 1972, for Higher Education in Iran by year of high school graduation.*

Applicants	*year of graduation*			*Total*
	1972	*1971*	*1970 and before*	
Number	*25258*	*13907*	*23200*	*62365*
Percent	*40.5*	*22.3*	*37.2*	*100*

Source: *adopted from Personal Characteristics of Applicants for Higher Education: Centralized Entrance Examinations, July 1973 IOIHER, Report No. 42, Tehran, 1974.*

APPENDIX B

Table B_1: *Subject matter and their weights considered in the test battery for high school graduates in Natural Science*

Subject Matter		*Weight*
1.	*Intelligence and scholastic aptitude*	*1*
2.	*Persian language*	*1*
3.	*Foreign language*	*1*
4.	*Natural Science (physiology, geology, evolution)*	*3*
5.	*Physics and Mathematics*	*2*
6.	*Chemistry*	*2*

Source: *The Guide for Entrance Examinations to Universities and Insitutes of Higher Education 1973-74, Tehran: Testing Center, Ministry of Science and Higher Education, 1973.*

Table B_2: *Subject matter and their weights considered in the test battery for high school graduates in Mathematics*

Subject Matter		*Weight*
1.	*Intelligence and scholastic aptitude*	*1*
2.	*Persian language*	*1*
3.	*Foreign language*	*1*
4.	*Mathematics (algebra, trigonometry, geometry, arithmetics)*	*3*
5.	*Mechanics and Physics*	*2*
6.	*Chemistry*	*2*

Source: *See Table B_1*

Appendix B (cont'd)

Table B_3: Subject matter and their weights in the test battery of tests for high school graduates in Humanities

Subject Matter		*Weight*
1.	*Intelligence and scholastic aptitude*	*1*
2.	*Persian language*	*1*
3.	*Foreign language*	*1*
4.	*Persian literature and Arabic language*	*3*
5.	*History and geography*	*2*
6.	*Logic, philosophy, psychology and ethics*	*2*

Source: See Table B_1

APPENDIX C

The Selection Criteria in CEE, 1974-75

In 1974-75, the centralized entrance examinations were divided into five groups according to the major fields of study available at the universities and institutes of higher education: (1) Natural Sciences and Medicine, (2) Mathematics and Engineering, (3) Literature and Humanities, (4) Social Science and Economics and, (5) Foreign languages.

The universities and institutes of higher education which selected their students through the centralized entrance examinations, in 1974-75, were the same as those in the previous year, except Pahlavi University which selected its freshmen through a non-testing procedure.

The applicant for admission to seven universities and five colleges had to choose one of the afore-mentioned groups and indicate his preferences for five fields of study, from the first to the fifth in that order.

The selection criteria in CEE in 1974-75 were the same as those applied in the previous year. Although, the tests administered in each of the five groups were almost the same as the tests used in the previous year, their weights were rather different. The weight of intelligence and scholastic aptitude test was (2) and the weight of the Persian Language and Culture test was (1). The weights of special subject matter tests were either (2) or (1) adding up to (4). As an example, the tests and their weights in the Literature and Humanities Group are given in Table C_1.

Table C_1: *Subject matter, their weights, number of items, and time limit in the test battery for the applicants in Literature and Humanities Group, 1974-75.*

Subject Matter	Weight	No. of items	time limit (minutes)
A. General			
1. Intelligence and scholastic aptitude	2	68	30
2. Persian language and culture	1	68	30
3. Foreign language	1	68	40
B. Special			
1. Persian Literature and Arabic language	2	68	45
2. History and Geography	1	68	35
3. Philosophy, logic, psychology and ethics	1	60	30

Source: *The guide for Entrance Examinations to Universities and Institutes of Higher Education, 1974-75, Tehran, Testing Center, MSHE, 1974.*

Table C_2: *Distribution of students at the universities and institutes of higher education in Iran, 1973-74*

Students	Universities	"B.A. granting" and junior colleges		Total
		public	private	
Total	48858	44002	30254	123114
Male	36869	29901	20232	87002
Female	11989	14101	10022	36112
Freshmen	11563	16895	8351	36809

Source: *Statistics of Higher Education in Iran, IRPSE, Tehran March 1974*

APPENDIX D

Distribution of students in Higher Education by Profession of Father, 1969-70

Professional Group	*Percent*
Civil Servant	*35*
Self employed (small scale)	*28*
Farmer	*6*
Self employed (large scale)	*3*
Worker	*2*
No reply	*17*
Deceased	*7*
Unemployed, unable to work	*2*
TOTAL	*100*

Source: *Composition of Students at the Universities and Institutes of Higher Education in Iran: A Statistical Portrait. Institute for Research and Planning in Science and Education, Tehran, 1970.*

APPENDIX E

Table E: Multiple-correlation between College Grade Point Average, High School Final Examinations Scores (HSFWE) and CEE Composite Score for students of a Selected Number of Faculties

Faculty/School	Year of CEE	No. of applicants	Correlation Coefficient		
			HSFWE scores	CEE comp. scores	HSFWE scores + CEE score
School of Medicine Univ. of Isfahan	1970	43	.66 **	.53 *	.76 **
	1971	39	.75 **	.54 *	.78 *
	1972	27	.79 *	.65	.87
School of Engineering Univ. of Pahlavi	1971	82	.63 **	.60 **	.71 **
	1972	19	.70 **	.61 **	.75 **
Faculty of Science Univ. of Tehran	1970	110	.48 **	.36 *	.54 **
	1971	118	.62 **	.39 **	.63 **
	1972	98	.65 **	.42 **	.71 **
School of Law Univ. of Tehran	1970	72	.70 **	.47 **	.72 **
	1971	54	.52	.43	.61
			.72 **	.50	.75 **

** $p < 0.01$ * $p < 0.05$

Source: adopted from Baraheni, M.N. "A Comparative Study of High School Grades and Centralized Entrance Examinations Scores in Predicting College Achievement". Tehran: Testing Center, September 1974.

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